

Table Design

Section 508 Requirements and
User Accessibility

Introduction

- For web content developers
- Table design techniques to meet usability and Section 508 requirements
- How to design for simple tables

Definition

- 1194.22(g): Row and column headers shall be identified for data tables.
- 1194.22(h): Markup shall be used to associate data cells and header cells for data tables that have two or more logical levels of row or column headers.

Terms

- Definitions: HTML 4.01 11.2.6
- Table: Defines a table structure
- <TR> Defines a row
- <TH> Defines a table header
- <TD> Defines a table data cell
- <Caption> Title of a table

Terms (cont)

- Summary: summarizes purpose or content of the table
- Scope: specifies the set of data cells for which the current header cell provides header information
 - Row: The current cell provides header information for the rest of the row that contains it
 - Col: The current cell provides header information for the rest of the column that contains it

Table Structure

- Typical table design
 - <table cellpadding="0" cellspacing="0" border="0" width="100%">
 - <tr>
 - <td></td>
 - <td></td>
 - </tr>
 - </table>

Table Structure (cont)

- Was that a data or a layout table?

DON'T KNOW

What are the rules? (cont)

- How do you markup tables that are used for layout?

You don't, the rules only apply to data tables.

Simple Table (cont)

Microsoft FrontPage

File Edit View Insert Format Tools Table Frames Window Help

Normal (default font) 6 (24 pt) B I U

Views new_page_1.htm

Cups of coffee consumed by each senator

Name	Cups	Type of Coffee	Sugar?
T. Sexton	10	Espresso	No
J. Dinnen	5	Decaf	Yes
A. Soria		Not available	

Normal HTML Preview

0 seconds over 28.8

Simple Table

(cont)

● Code

Cups of coffee consumed by each senator

```
<TABLE border="1">  
  <TR><TD>Name</TD><TD>Cups</TD><TD>Type  
  of Coffee</TD><TD>Sugar?</TD></TR>  
  <TR><TD>T. Sexton</TD><TD>10</TD>  
  <TD>Espresso</TD><TD>No</TD></TR>  
  <TR><TD>J. Dinnen</TD><TD>5</TD>  
  <TD>Decaf</TD><TD>Yes</TD></TR>  
  <TR><TD>A. Soria</TD><TD colspan="3"> Not  
  available</TD></TR>  
</TABLE>
```

Simple Table: How to Code

- * What is the first thing that needs to be done?

Identify all table row and column headers (1194.22(g))

- * How do you make a table header?

Use the <TH> tag or Scope attribute

Simple Table: How to Code (cont)

- Table Header

Cups of coffee consumed by each senator

```
<TABLE border="1">
```

```
  <TR><TH>Name</TH><TH>Cups</TH><TH>Type  
    of Coffee</TH><TH>Sugar?</TH></TR>
```

```
  <TR><TH>T. Sexton</TH><TD>10</TD>
```

```
  <TD>Espresso</TD><TD>No</TD></TR>
```

```
  <TR><TH>J. Dinnen</TH><TD>5</TD>
```

```
  <TD>Decaf</TD><TD>Yes</TD></TR>
```

```
  <TR><TH>A. Soria</TH><TD colspan="3">  
    Not available</TD></TR>
```

```
</TABLE>
```

Simple Table: How to code (cont)

* Are we Done?

No

* Is there more than one logical level in the table?

* Yes, there are column headers and the first data cell of the row is actually a row header.

Simple Table: How to Code (cont)

- Explanation:

- A column header defines information below it. The first data cell in the row is the name of an individual. The information on that row defines the information for the individual. This in essence makes it a Header for the row.
- This definition can apply to parts numbers, job openings, etc.

Simple Table: How to Code (cont)

- Should I use Headers and ID for simple tables as specified by the W3C?

ID=COL1	ID=COL2	ID=COL3	ID=COL4
Headers= COL1	Headers= COL2	Headers= COL3	Headers= COL4
Headers= COL1	Headers= COL2	Headers= COL3	Headers= COL4
Headers= COL1	Headers= COL2	Headers= COL3	Headers= COL4

Simple Table: How to Code (cont)

- Do not use the previous method!
- Why
 - Because there isn't any association to the row headers.
- How should I code for the table?
 - You can use the Scope attribute or the id and headers attribute.

Simple Table: How to Code (cont)

- Headers and ID

ID =COL1	ID =COL2	ID =COL3	ID=COL4
ID = Row1	Headers= Row1 COL2	Headers= Row1 COL3	Headers= Row1 COL4
ID = Row2	Headers= Row2 COL2	Headers= Row2 COL3	Headers= Row2 COL4
ID = Row3	Headers= Row3 COL2	Headers= Row3 COL3	Headers= Row3 COL4

Simple Table: How to Code (cont)

- Problems with Headers and ID
 - Every table header cell must have an ID
 - Every table data cell must have a “headers” attribute with the associated “ids”
 - Cumbersome to code for small simple tables or complicated for large simple tables.
- Is there another solution?

Simple Table: How to Code (cont)

- Review original table

The screenshot shows a Microsoft FrontPage window with a title bar "Microsoft FrontPage". The menu bar includes File, Edit, View, Insert, Format, Tools, Table, Frames, Window, Help. The toolbar below has icons for file operations, selection, and various tools. A "Views" sidebar on the left lists Page, Folders, Reports, Navigation, Hyperlinks, and Tasks. The main content area displays a table titled "Cups of coffee consumed by each senator". The table has four columns: Name, Cups, Type of Coffee, and Sugar?. The data is as follows:

Name	Cups	Type of Coffee	Sugar?
T. Sexton	10	Espresso	No
J. Dinnen	5	Decaf	Yes
A. Soria		Not available	

At the bottom, there are tabs for Normal, HTML, and Preview, along with a status bar showing "0 seconds over 28.8".

Simple Table: How to Code (cont)

- Scope Attribute

Scope=COL	Scope=COL	Scope=COL	Scope=COL
Scope=Row			
Scope=Row			
Scope=Row			

Simple Table: How to Code (cont)

- Benefits:
 - Only the table headers require additional coding. Table data cells do not.
 - Table data cells are associated to the headers by the scope attributes (row and col) which define the entire column and row.
 - Easy to code
 - Cut and Paste
 - Easy to create dynamically generated table

Simple Table: How to Code (cont)

- Dynamically generated table (Generic approach)

```
<table border="0">
  <tr>
    <th scope="col">Column Name</th>
    <th scope="col"> Column Name </th>
    <th scope="col"> Column Name </th>
  </tr>
  <Loop Query="Query Name">
    <tr>
      <td scope="row">Field value</td>
      <td>Field value</td>
      <td>Field value</td>
    </tr>
  </loop>
</table>
```

Simple Table: Summary

- Which is which

Table

Table

Table

Table

Which one is the data table?

Simple Table: Summary (cont)

- You don't know the type of table if you are using a screen/Braille reader
- Web developers rarely code layout tables in the correct nested order
- What is the option?

Summary Attribute

Simple Table: Summary (cont)

- Summary Attribute
 - Place inside the <table> tag
 - Layout: state that the table is for layout
 - Data: brief description of what the table is about

Simple Table: Caption

- How about the table title?
 - Usually outside of the table
 - May have other information around the title
 - Could be confusing to the screen/Braille reader
- What can you do?

CAPTION tag

Simple Table: Caption (cont)

- Caption tag is an element of a table
 - Place after the <Table> tag and before the first <TR>
 - Can format in standard ways
- Why should I care?
 - You now have a complete table component

Simple Table: Complete

```
<table summary="">
  <caption> </caption>
  <tr>
    <th scope="col"> </th>
    <th scope="col"> </th>
  </tr>
  <tr>
    <td scope="col"> </td>
    <td> </td>
  </tr>
</table>
```

Simple Table: How It Reads

- The screen/Braille reader will read as follows:
 - Table has ‘x’ amount of rows by ‘y’ amount of columns
 - It will then read the summary
 - It will then read the Caption (table title)
 - User now has the choice to jump to the next table, not wasting their time trying to figure out the table

Simple Table: Review

- * Layout tables are required to have what type of markup?

Nothing, but should use a Summary attribute if the layout tables are not properly nested to distinguish layout and data tables.

Simple Table: Review (cont)

- * Simple data tables are required to have what type of markup?

Row and column headers, data cell association to headers

Simple Table: Review (cont)

- Why do I want to use Summary and Caption?

Easier navigation for people using screen/Braille readers

Good Customer Service

Complex Table

- Definition:

- Complex table: A data table that has two or more column headers and/or row headers
- Id: identifies the header cell for column. From the W3C “Each cell in the same column refers to the same header cell (via the ‘id’ attribute)”
- Headers: specifies the list of header cells that provide header information for the current data cell

Complex Table (cont)

Untitled Document - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Search Favorites Media Links Go 500Dev 500test 500 Acc Acc Site Sytel

Address C:\Documents and Settings\gmoghe\Desktop\plain.htm

Rain/Snow Amounts

	January		February	
	Rain	Snow	Rain	snow
Washington, DC	1 inch	10 inches	2 inches	4 inches
New York, NY	.5 inch	15 inches	.5 inch	8 inches

Complex Table (cont)

- Can you use scope?
 - No, scope is for single columns. You may see examples of Scope in a column or row and on top of that column or beside that row another scope. That is incorrect coding.
- Can I use Scope=“RowGroup” or “ColGroup”?
 - No, at this time it is not supported by the assistive technology.

Complex Table (cont)

- What do I use?
 - Id and Headers
 - The “id” attribute goes into the row and column headers.
 - The “id” must be unique in that table structure
 - The “headers” attribute goes into the all data cells in the table structure

Complex Table (cont)

- How does it work?

- The “id” attribute identifies the data cell.
- The “headers” attribute identifies all the headers for that particular data cell.
- The screenreader goes to a data cell and reads the “headers” attribute. Once it has determined the “id” of the headers, it then says the header information for the data cell.

Complex Table (cont)

- Things to be aware:
 - 1. The screenreader normally reads new header information when you change focus to a different row or column
 - 2. If a user gets lost in the table, they can use a key combination that gets **ALL** the header information for that data cell. That is why it is important that data tables are coded correctly.

Complex Table (cont)

- Review the table:

The screenshot shows a Microsoft Internet Explorer window displaying a table titled "Rain/Snow Amounts". The table compares monthly precipitation (Rain and Snow) for two locations: Washington, DC and New York, NY. The table has a header row with four columns: January Rain, January Snow, February Rain, and February Snow. The data rows show that Washington, DC received 1 inch of rain and 10 inches of snow in January, and 2 inches of rain and 4 inches of snow in February. New York, NY received .5 inch of rain and 15 inches of snow in January, and .5 inch of rain and 8 inches of snow in February.

	January		February	
	Rain	Snow	Rain	snow
Washington, DC	1 inch	10 inches	2 inches	4 inches
New York, NY	.5 inch	15 inches	.5 inch	8 inches

Complex Table (cont)

- Overall Code View (table below is represented by text code in next 2 slides)

	Id="month1"		Id="month2"	
	Id="rain1"	Id="snow1"	Id="rain2"	Id="snow2"
Id="city1"	Headers="city1 rain1 month1"	Headers="city1 snow1 month1"	Headers="city1 rain2 month2"	Headers="city1 snow2 month2"
Id="city2"	Headers="city2 rain1 month1"	Headers="city2 snow1 month1"	Headers="city2 rain2 month2"	Headers="city2 snow2 month2"

Complex Table (cont)

- Code Example

- <table width="99%" border="1" cellspacing="2" cellpadding="3" summary="Rain and snow amounts for Washington DC and New York City">
- <caption>
- <h3>Rain/Snow Amounts</h3>
- </caption>
- <tr>
- <th rowspan="2" width="19%"></th>
- <th colspan="2" id="month1">January</th>
- <th colspan="2" id="month2">February</th>
- </tr>
- <tr>
- <th width="16%" id="rain1"><div align="center">Rain</div></th>
- <th width="23%" id="snow1"><div align="center">Snow</div></th>
- <th width="20%" id="rain2"><div align="center">Rain</div></th>
- <th width="22%" id="snow2"><div align="center">snow</div></th>
- </tr>

Complex Table (cont)

- Code Example (cont)

- <tr>
- <td id="city1">Washington, DC</td>
- <td headers="city1 rain1 month1"><div align="center">1 inch</div></td>
- <td headers="city1 snow1 month1"><div align="center">10 inches</div></td>
- <td headers="city1 rain2 month2"><div align="center">2 inches</div></td>
- <td headers="city1 snow2 month2"><div align="center">4 inches</div></td>
- </tr>
- <tr>
- <td id="city2">New York, NY</td>
- <td headers="city2 rain1 month1"><div align="center">.5 inch</div></td>
- <td headers="city2 snow1 month1"><div align="center">15 inches</div></td>
- <td headers="city2 rain2 month2"><div align="center">.5 inch</div></td>
- <td headers="city2 snow2 month2"><div align="center">8 inches</div></td>
- </tr>
- </table>

Complex Table (cont)

- General Question:

- 1194.22(g) says to identify row and column headers. The Access Board says to do this with the <TH> element. Why don't you use <TH> for the row headers?

- Answer:

- If you review the definitions, which are taken from the W3C, using the “SCOPE” attribute along with “ROW” or “COL” identifies that data cell as a header cell.

Complex Table (cont)

- Common Errors:

- Leaving out “id” attributes in the header cells
- Leaving out the “id” names in the “headers” attribute
- Duplicate “id” names in the header cells
- “Headers” attributes with wrong “id” names
- Using the “Scope” attribute